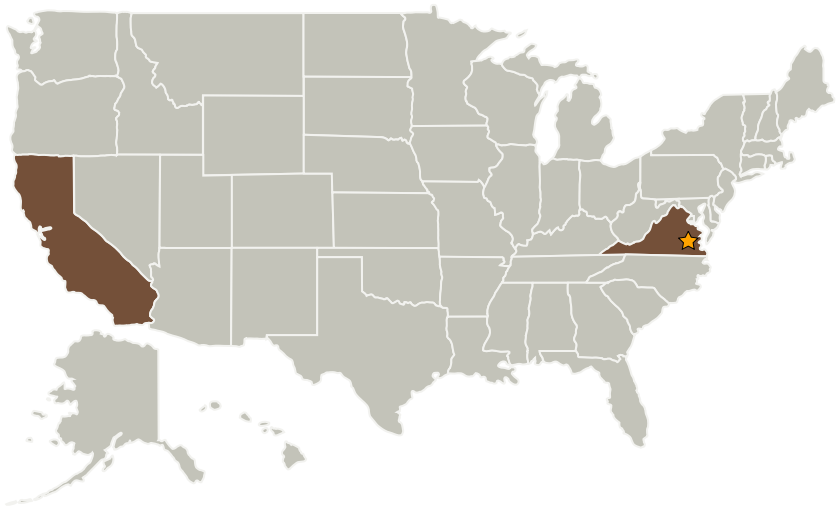
# Cradle-to-Grave Monitoring of Composite Aircraft Structures, Phase II

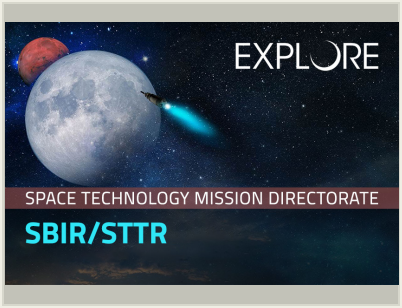
Completed Technology Project (2007 - 2009)

## Project Introduction

NextGen Aeronautics, after achieving promising results in Phase I, is proposing a simple yet powerful damage identification technique for honeycomb advanced composite structures in Phase II. The proposed Phase II program is focused to achieve at least TRL of 5 and quickly commercialize technology in Phase III. The specific objectives are: 1) Improve Raleigh-Lamb (RL) wave based statistical detection technology; 2) Reduce NDE time by field usable automated data collection; 3) Develop end-to-end system software; 4) Develop detailed early commercialization plan. The Phase II development will provide a significant improvement in functionality of the system and put strong emphasis on process automation. NextGen is pursuing teaming arrangement with Boeing and Northrop Grumman to test the proposed system in realistic environment. During Phase I, the NextGen team established feasibility of the proposed system by evaluating it on a honeycomb plate, a common construction used in many secondary structures of aircraft. NextGen has chosen an outstanding team that has considerable prior experience, an in-depth understanding of damage modes in advanced composite structures, and comprehensive knowledge of damage detection techniques. Our team's combined expertise in health monitoring systems and our relationship with system integrators will ensure near-term technology transition.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Center / Facility:**

Langley Research Center (LaRC)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

**Small Business Innovation Research/Small Business Tech Transfer**

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| Organizations Performing Work | Role | Type | Location |
|---|---|---|---|
| ★Langley Research Center(LaRC) | Lead Organization | NASA Center | Hampton, Virginia |
| NextGen Aeronautics, Inc. | Supporting Organization | Industry<br>Minority-Owned Business, Small Disadvantaged Business (SDB) | Torrance, California |

| Primary U.S. Work Locations | |
|---|---|
| California | Virginia |

## Project Transitions

**November 2007:** Project Start

**November 2009:** Closed out

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.2 Structures
    - TX12.2.3 Reliability and Sustainment